



## CLASSROOM INNOVATION IN MATHEMATICS GRANT 2010-11

### OVERVIEW

**Purpose:** From 2005 to 2009, state scores in mathematics were stagnant, rising only one percentage point over the four-year span. At the state level, IDOE is currently exploring new, innovative classroom strategies that will help to push mathematics in Indiana forward. One such strategy is the integration of digital curriculum and technology into traditional teaching methodologies.

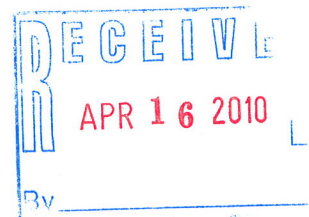
The purpose of the program is to provide a select number of LEAs with the opportunity to use digital mathematics curricula, technology-based instruction, and interactive white boards in lieu of traditional textbooks. This grant provides an opportunity for LEAs to pilot digital curriculum which can be readily aligned to changes in standards and to determine its effectiveness with their student populations and within their contexts. Following the grant, LEAs will either continue the use of digital curriculum through their textbook rental program or discontinue use of the digital curriculum and seek an alternative for curricular materials. Digital curriculum would need to utilize innovative strategies for instruction and represent a significant break from the traditional textbook-oriented instruction and be approved by the IDOE, but it would not serve as a standalone, online course that replaces the classroom teacher. In order to evaluate the effectiveness of these strategies, awards will be limited to schools that propose plans for either: 6<sup>th</sup> Grade, 7<sup>th</sup> Grade, 8<sup>th</sup> Grade, and/or Algebra I. The results of this pilot program will be used to evaluate the effectiveness of digital curriculum and provide data for schools that may look at adopting digital mathematics curricula in the future.

This grant program is funded through the David C. Ford Fund.

**Application:** Please fill out each part completely. For assistance, you may contact Zach Foughty at [zfoughty@doe.in.gov](mailto:zfoughty@doe.in.gov) or Phone: (317) 233-5019

### I. GENERAL INFORMATION

1. Corp # 2645	2. Corp Name Rochester Community School Corporation		
3. Corp Address (Street, City, State, Zip) 690 Zebra Lane, P.O. Box 108, Rochester, IN, 46975-0108		4. Telephone (574) 223-2159	
5. Contact Person's Name Daniel Ronk		6. Contact Person's Email Address Daniel.Ronk@zebras.net	
7. Contact Person's Address (Street, City, State, Zip) 1 Zebra Lane, Rochester, IN, 46975-0108		8. Contact Person's Telephone (574) 223-2176 ext 4001	
9. Superintendent's Name Dr. Debra Howe		10. Superintendent's Email Address Debra.Howe@zebras.net	
11. # of Schools Participating 1	12. # of Students Being Served Option #1 (170) Option #2 (400)		13. # of Teachers Participating 5





**II. Project Abstract**

**Briefly describe the proposed project clearly and concisely using the space provided.**

Rochester Zebra New Tech (ZNT) High School is a small town school located in a rural setting. There are 606 students enrolled. ZNT is 93% white and 7% minority. The Free/Reduced count is 33%. While ZNT achieved AYP, the passing rate on the Algebra End-of-Course exam was 36% for the current sophomore class.

Rochester Zebra New Tech (ZNT) High School currently uses both 1:1 student computing and Smart Boards in each math classroom. As a result of that technology, we are making an extended proposal for the Classroom Innovation in Mathematics Grant. We are proposing an Option I request that fits the guidelines provided for the grant application for Algebra I.

We are also proposing an Option II that would expand and enhance the use of technology in teaching high school math in Indiana. We are proposing the purchase of Smart Math Tools to enhance the use of Smart Boards and the purchase of student response systems to fully engage students in the learning process. As we note later, Rochester ZNT is in a unique position to host school visits and allow educators and state leaders to see the digital curriculum in full use.

Option I

**Algebra I students**

Digital subscriptions  $180 \times \$30 = \$5400$

Professional Development = \$ 300

Smart Math Tools = \$ 129

Student Response System = \$1999

(each system contains 32 individual units)

Acuity Set Up = \$4500

Acuity Assessments  $180 \times \$8.75 = \$1575$

Total = \$13903

Because we do not need to purchase the Smart Boards or computers, we propose buying the Smart Board Tools and student response systems out of the \$28,500 that would have been required. Our option II is an extended proposal to take your initial grant proposal and expand it to other math subjects. Rochester Zebra New Tech wants to begin the second step in the implementation of digital curriculum and put a digital curriculum into our Geometry, Algebra II, and Pre-Calculus math classes. Our goal is not just to increase school performance on the

ISTEP+ exam but to fully prepare students for success in post secondary education. We also want to have in place a system that will help students who do not pass the ISTEP+ exam on their first attempt. We want to continue to help those students grow and pass the ISTEP+ exam. We would also like to make the digital curriculum available to all our special needs students and to provide Professional Development for all our math teachers in the use of the digital curriculum and technology tools.

Awarding this grant could also benefit the state and the Ford Fund in that ZNT is recognized as a national demonstration site for Project Based Learning and New Tech implementation. Visitors from all over the state could see a digital curriculum in place for several math subjects. In addition, our Technology Director is becoming a certified Smart Board trainer. We could also share the injection of problem based and projected based instruction to supplement the digital curriculum. These visitors could also experience the full use of technology for regular math classes, enrichment, and remediation. Because we would not need the Smart Boards or computers, we would like to reallocate that \$28,500 to service our other math classes by providing digital curriculum subscriptions, professional development, Smart Math tools, and Smart Response System to all our math teachers.

The proposed budget for our Option II would be:

Digital subscriptions	$\$30 \times 400 = \$12000$
Profession Development for all ZNT teachers	$\$300 \times 5 = \$1500$
Smart Math Tools	$\$129 \times 5 = \$645$
Classroom set of Smart	$\$1999 \times 5 = \$9995$
Total	\$24140

Our option I proposal reduces costs for a typical single school implementation because we have Smart Boards and computers. If you accept our Option II proposal, the combined cost of both proposals is equal to funding just one typical Algebra I program. Granting both proposals would allow Indiana schools to visit a fully implemented program that not only teaches math with a digital curriculum, but also uses technology tools to meet the needs of high ability students and struggling students. We believe our program would help move the state much further in assessing the practice of digital curriculum and instruction for the success of Indiana math students.



Please complete one grant narrative for your LEA which includes all schools. Narratives should be double spaced, 12pt Times New Roman font, and not to exceed 10 pages.

### III. GRANT NARRATIVE

**Software Choice and Rationale:** Identify the digital content program you have selected. Describe how this program aligns with the purpose of the grant. Describe how this program will address the instructional needs of your students and teachers.

Our choice for software to use as a digital curriculum would be ALEKS. We chose this software for several reasons. First, we have used this product this past year in some of our classes, at all levels in the corporation. Most of our math teachers already know the basics of how to use the program and how to check progress. ALEKS aligns perfectly with the grant in that it is a new and innovative way to teach math. ALEKS not only helps determine what a student already knows, but it allows them to work at their current level. This is tremendously beneficial when you consider most math students at the Algebra I level are at a wide range of mastery. With math scores currently leveled off, the use of ALEKS could help our students improve scores and success on the Algebra I ECA Exam. ALEKS will address our instructional needs by allowing students to work at their current achievement level, whether that be above or below proficiency. In addition to meeting the individual proficiency needs of the student, ALEKS will address standards specific to the math course as outlined in the teacher developed pacing guide. The teacher will monitor student progress on the course topics and deliver “workshops” to ensure students have mastered the standard. For one and a half (1.5) days per week, the student will be engaged in problem-based instruction aligned with the ALEKS topics and the nine weeks project to ensure relevance and application. While ALEKS assesses students on mastery based on their individual levels, a bi-monthly assessment will be assigned on the topics identified in the pacing guide. Students’ time will not be wasted teaching them topics they are not ready to learn or have already learned. We hope to be more efficient in our use of time. Students will also have the opportunity to work on ALEKS from home. ALEKS is web based and can be accessed from any computer with an internet connection. Teachers will benefit from using ALEKS by not having to



guess what students know and don't know, leading to better planning and use of precious class time. ALEKS will periodically re-assess students to ensure that mastered topics are retained, and to ensure the student is on the best path for success. Teachers have a wealth of information at their finger tips, ranging from topics mastered by state standards to a list of students ready to learn a certain topic. ALEKS presents the opportunity to create a partnership with parents. Parents are able to see the student work at home, receive tutoring, and monitor the mastery progress for the state standards.

**Professional Development:** Describe the PD needs of your teacher for using interactive whiteboards and implementing digital curriculum and detail the specific plan for meeting those needs.

Math teachers at Rochester New Tech High School already have experience using interactive whiteboards. Each teacher has their own Smart board and projector and has already received training on basic use and functionality. In an effort to diversify how math topics are presented to students, we would like to focus whiteboard professional development on the use of Smart Math Tools and the Smart Response Systems. Professional development for the implementation of the digital curriculum would need to be more on-going than up-front training. With our teachers already having experience using the software, it would benefit the teachers to meet monthly to discuss how the implementation is going, share lessons learned, and further develop their use of the program.

**May 2010-** ½ Day of Smart Response Training (Free with Purchase of Smart Response System) ½ Day Training on ALEKS Training and Smart Math Tool Training

**June 2010-** 1 Full Day of Training/Planning for next year's curriculum, to include pacing guide and standards.

**Aug 2010-** ½ Day training for Acuity

**Implementation Plan – Digital Content:** Describe your plan for monitoring the implementation of the digital content with fidelity to program guidelines.



Rochester ZNT is currently working on a uniform implementation plan that includes research on best practice, field experience of other schools, and the experience of current teachers piloting the program this school year. Guidelines will be in place for time spent in the program, accompanying activities, and grading practices that motivate students. Teachers will be required to use reports to monitor student progress and to report those results to parents and higher levels of administration.

The ALEKS program allows administrators to monitor usage from any computer with internet access. As an administrator using ALEKS, one can check student and class usage from both home and school, results, reports, and assessment data. Our plan to monitor the implementation would involve using this feature by the principal as well as district math coordinator. Administrators will do weekly observations in the math classroom, to ensure compliance with the program guidelines.

The principal and district math coordinator would also have informal discussions on a periodic basis with teachers implementing the digital curriculum to ensure that those teachers' needs are being met and we are in compliance.

**Implementation Plan – Interactive Whiteboards:** Outline your current inventory of interactive whiteboards, how you can realign current inventory to meet program goals of one interactive whiteboard per classroom mathematics teacher, and what funds you would apply for in order to address these gaps.

Currently, each of our math teachers has a digital Smartboard and projector, and has experience/training using them. There would be no need to realign or redistribute any equipment to implement this program. In lieu of purchasing digital whiteboards, we would propose using those funds to purchase the Smart Math Tools (supplemental software that gives teachers and students tools to use with math lessons) and Smart Response Interactive Systems (a student clicker system used with Smart Boards and Smart Software for immediate feedback). We would like to purchase one set of Smart Response clickers per math teacher and one software pack of Smart Math tools per teacher.

**Implementation Plan – Online Assessments:** Describe each school's capacity and commitment to administer online ISTEP+ and ECA assessments, as well as Acuity Assessments, both with and without additional lab



**space that grant funds could provide. Describe how teachers will ensure that students are trained on how to properly complete online assessments.**

ZNT already administers the ISTEP+ Algebra and English End-of-Course exams online in individual classrooms. No additional lab space or teacher training is required. The only training necessary would be the additional administration of the Acuity assessments. A built-in advantage of ALEKS is that it is an open response program that very closely mimics the online format of ISTEP+. Every day that students use ALEKS, they will be practicing the format of the online exam. Each teacher has enough computers in the classroom to test all students assigned to that class.



\*This is not a requirement for the grant, but it will help us to determine the additional resources need at the local level.

Expenditures Budget (Use a separate line for each expenditure, and add rows as needed)					
<u>Expenditure Description</u>	<u>Person Responsible</u>	<u>Cost per Unit</u>	<u>Number of Units</u>	<u>COST</u>	
<b>OPTION #1</b>					
Professional Development	Daniel Ronk	\$100	2	\$200	
Additional lab set up		N/A	N/A	0	
Additional Costs for Interactive Whiteboard (e.g. installation materials)		In place	N/A	0	
Additional Cost per person for ALEKS Subscription (\$40 per student per year)	Jason Snyder	\$10	180	\$1800	
<b>OPTION #2</b>					
Professional Development	Daniel Ronk	\$100	10	\$1000	
Additional lab set up		N/A	N/A	0	
Additional Costs for Interactive Whiteboard (e.g. installation materials)		In place	N/A	0	
Additional Cost per person for ALEKS Subscription (\$40 per student per year)	Jason Snyder	\$10	400	\$4000	
<b>Total Funds Requested</b>				Option 1 \$2000 Option 2 \$5000	



#### V. ASSURANCES

By checking each box below, you agree to the following assurances:

- ☒ The LEA assures that Acuity online assessments will be administered to assess student growth during the grant period (e.g. Acuity Predictive or Pre/Post Test; the exact assessments will be determined by the DOE, but will not exceed 3 tests during the school year, excluding ISTEP+ and ECA).
- ☒ The LEA assures that, given favorable results on a statewide level, it will give serious consideration to sustained use of digital curricula in all schools in the LEA until the next textbook adoption cycle (2016-17 school year).
- ☒ The LEA assures that the selected digital curriculum will be implemented, with fidelity, as the core curriculum for all mathematics classrooms (6<sup>th</sup> Grade, 7<sup>th</sup> Grade, 8<sup>th</sup> Grade, and/or Algebra I) at each school that receives grant funds, for the duration of the school year. "With fidelity" implies that districts will take the steps necessary to implement the digital curriculum as outlined by the vendor.
- ☒ The LEA assures that teachers will be provided with professional development necessary to implement digital curriculum with fidelity. Professional development includes, but is not limited to, training on digital curriculum software, integrating interactive whiteboards into a standards-based classroom, and using Acuity assessments to guide instruction.
- ☒ The LEA assures that funds used for interactive whiteboards will remain in mathematics teacher classrooms for the duration of the program. Any realignment of current inventory for these purposes will also remain in effect for the duration.
- ☒ The LEA assures that all 7<sup>th</sup> and 8<sup>th</sup> grade students in Algebra I will take the Algebra ECA online.
- ☒ The LEA assures that all students will take the ISTEP+ online, unless the school can demonstrate an inability to test all students online.
- ☒ The LEA assures that all teachers that use digital curriculum will participate in an *anonymous* evaluation of the program to determine its ability to impact teaching methods.
- ☒ The LEA assures that classrooms in which digital curriculum is being used will be available for observation by certain members of the Department of Education, with reasonable notification, to provide for a qualitative analysis of program effectiveness.
- ☒ The LEA assures that all students will complete a survey regarding the effectiveness of the digital curriculum.
- ☒ The LEA assures that all hardware and software implementations will be put in place before the start of the 2010-11 school year and that professional development related to this program will begin before the start of the 2010-11 school year.
- ☒ The LEA agrees to keep such records and to provide such information to the State educational agency, as may be reasonably required for fiscal audit and program evaluation (consistent with the responsibilities of the State educational agency under this part).



## VI. SIGNATURES

List the management team of this grant for each school. Each member of the management team should also sign below. Complete this sheet for *each* school that is included in the district's implementation plan.

School Name:

Grade Levels:

<u>NAME</u>	<u>POSITION</u>	<u>Signature</u>
1. Dr. Debra Howe	Superintendent	<i>Debra K. Howe</i>
2. Jason Snyder	District Math Coordinator	<i>Jason Snyder</i>
3. N/A	District Assessment Coordinator	
4. Daniel Ronk	Principal	<i>Daniel Ronk</i>
5. Linda Brennan	Math Department Chair	<i>Linda Brennan</i>